

REMARKS

In the Final Office Action mailed October 27, 2008, claims 1, 4-7, 9-13, 27, and 30-48 were pending for consideration. All of the claims were rejected, which is addressed below. By the present amendment, claims 1 and 27 have been amended. Support for these amendments can be found on page 8, lines 8-12 of the specification as filed. As such, the Applicant submits that no new matter is added thereby. Accordingly, claims 1, 4-7, 9-13, 27, and 30-48 remain pending in the present application. The Applicant respectfully submits that the present claims are allowable over the cited references.

35 U.S.C. § 103 Rejections:

The Examiner has rejected claims 1, 4-7, 9-13, 27, and 30-48 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Goers et al. (U.S. Patent 6,722,952) in view of Homola (US 2004/0096705) and Hayden (U.S. Patent 4,606,738). The Applicant respectfully submits that the combination of Goers, Homola, and Hayden does not teach or suggest each and every element of the present claims, and therefore the Patent Office has not established a *prima facie* case of obviousness.

Goers teaches an abrasive article including a backing and an abrasive coating bonded to the surface of the backing. The abrasive coating includes a plurality of diamond beads made up of diamond particles held in a metal oxide matrix (abstract; col. 2, lines 7-11). As has been indicated in the Office Action mailed April 11, 2008, the Goers reference does not disclose nanodiamond

abrasive particles having a particle size from about 1 nm to about 50 nm, nor does it disclose that the nanodiamond particles include a carbonaceous coating (Section 4).

Homola teaches a method for texturing a substrate for a magnetic disk comprising abrading the substrate using nano-sized diamond particles (abstract). As with the Goers reference, it has been indicated in the Office Action mailed April 11, 2008 that Homola does not disclose that the nanodiamond particles include a carbonaceous coating (Section 4).

Hayden teaches a composite abrasive particle comprising a core abrasive crystal and a silicon carbide coating inherently bonded to substantially all exterior surfaces of the core crystal (abstract). These particles are bonded together with resin, metal, vitreous material, etc. (col. 1, lines 37-40).

Claim 1 includes limitations to a fixed abrasive tool having, *inter alia*, a substrate and a polishing layer, where the polishing layer includes an organic matrix with nanodiamond particles therein. These nanodiamond particles include a carbonaceous coating selected from the group consisting of fullerenes, carbon onions, carbon nanotubes, diamond-like carbon, and combinations thereof.

None of the cited references, either alone or in combination, teach or suggest such a carbonaceous coating. Furthermore, the examiner has argued that the silicon carbide coating of Hayden would constitute a carbonaceous coating. The Applicant respectfully disagrees with this assertion. The term "carbonaceous" in the present specification is defined as a material made substantially from carbon. A coating of silicon carbide, however, is not a material made up of substantially carbon, but is essentially a 1:1 ratio of carbon to silicon. As such, the combination of

Hayden with Goers and Homola would not result in nanodiamond particles having a carbonaceous coating made substantially from carbon. Furthermore, there are no teachings or suggestions in any of the references that nanodiamond particles are coated with a carbonaceous coating selected from the group consisting of fullerenes, carbon onions, carbon nanotubes, diamond-like carbon, and combinations thereof. As such, the Patent Office has not established a *prima facie* case of obviousness because all of the limitations of claim 1 are not taught or suggested by the combination of references. Reconsideration is respectfully requested.

Additionally, claim 27 contains limitations to a method of removing material from a work piece using an abrasive tool having the same carbonaceous coating limitations. As such, the Applicant asserts that a *prima facie* case of obviousness has not been established for the reasons given above. Furthermore, claims 4-7, 9-13, and 30-48 depend from claims 1 and 27 and are thus narrower in scope, and they will also not be discussed in detail. It is assumed that they are allowable along with these independent claims. Reconsideration is respectfully requested.

CONCLUSION

In view of the foregoing, the Applicants assert that claims 1, 4-7, 9-13, 27, and 30-48 present allowable subject matter, and their allowance is respectfully requested. If any impediment to the entry of this Amendment and allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone Mr. David Osborne at (801) 566-6633, so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 20-0100.

Dated this 26th day of January, 2009.

Respectfully submitted,

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